MAY 2 7 2005
PATENT & TRADEMARK OFFICE

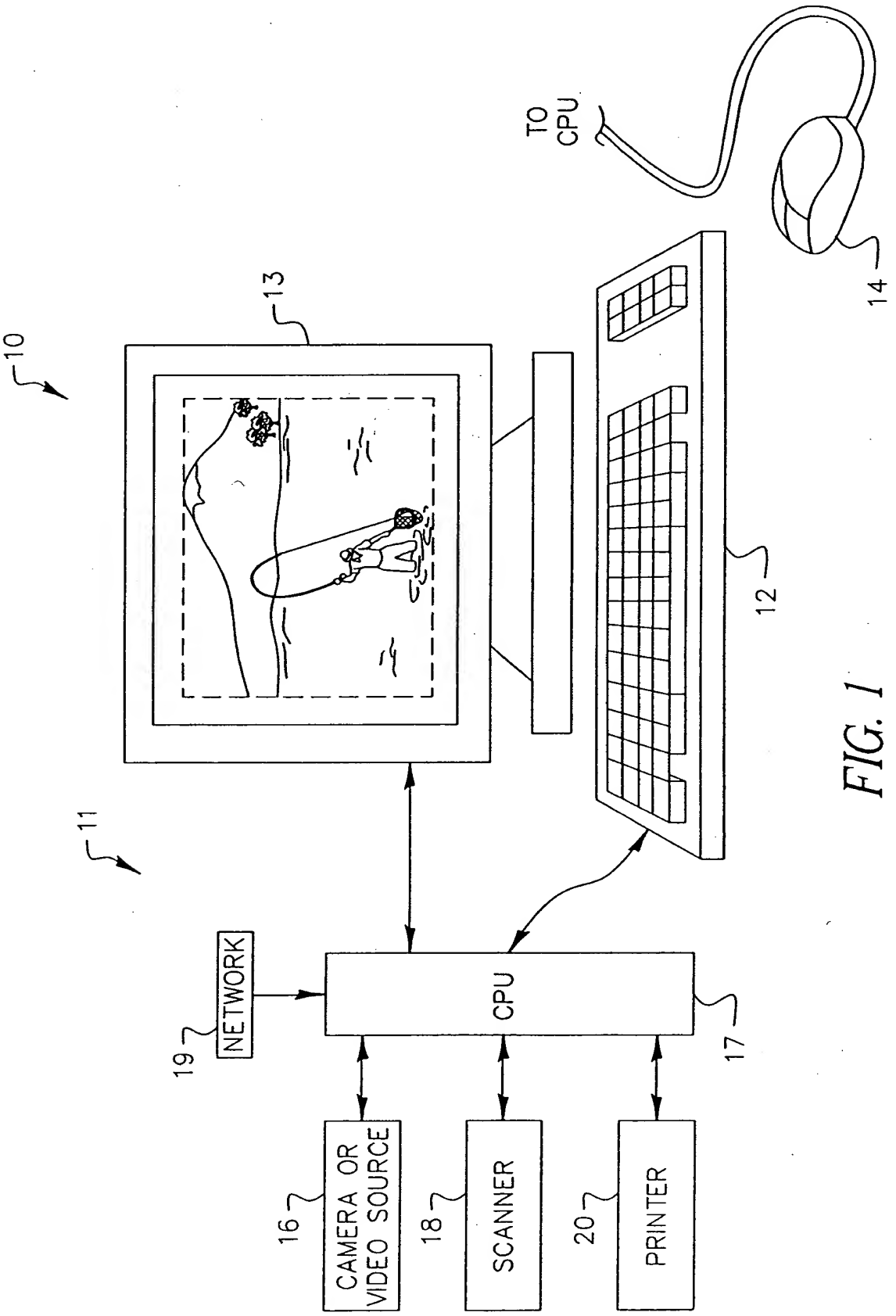


FIG. 1

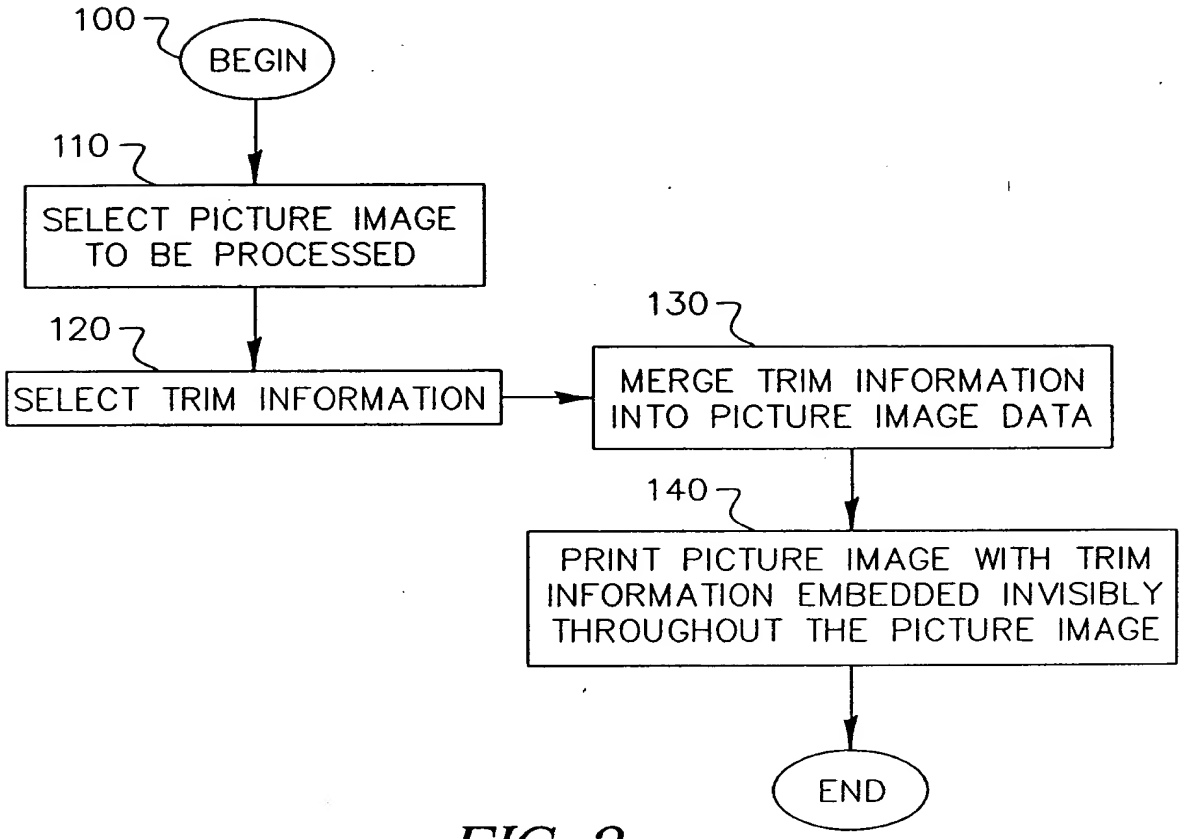

100
BEGIN
110
SELECT PICTURE IMAGE TO BE PROCESSED
120
SELECT TRIM INFORMATION
130
MERGE TRIM INFORMATION INTO PICTURE IMAGE DATA
140
PRINT PICTURE IMAGE WITH TRIM INFORMATION EMBEDDED INVISIBLY THROUGHOUT THE PICTURE IMAGE
END

FIG. 2

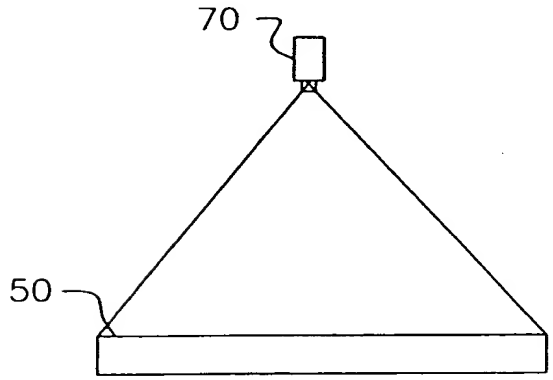

70
50

FIG. 4

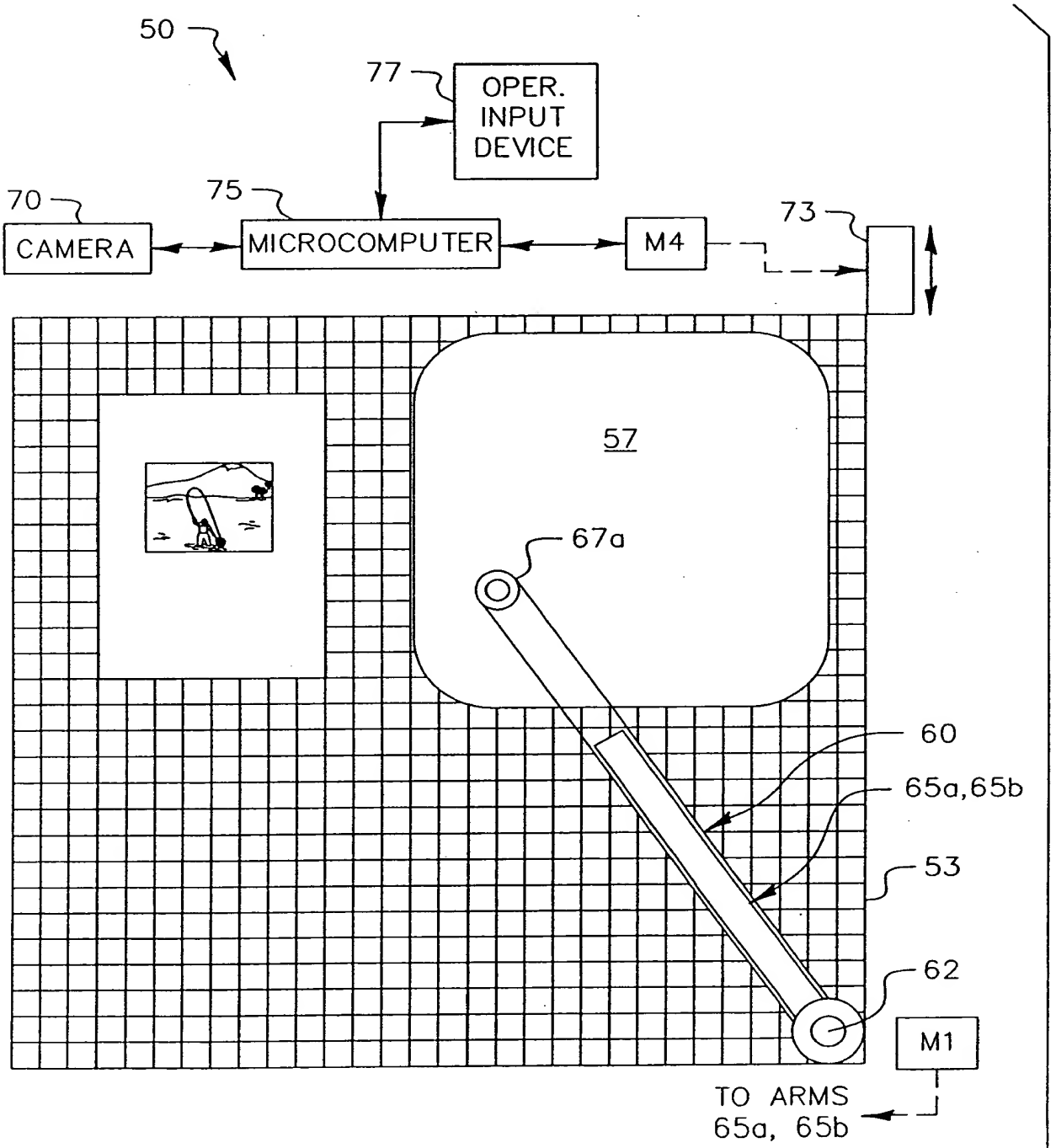

50
77
OPER. INPUT DEVICE
70
CAMERA
75
MICROCOMPUTER
M4
73
57
67a
60
65a,65b
53
62
M1
TO ARMS 65a, 65b

FIG. 3

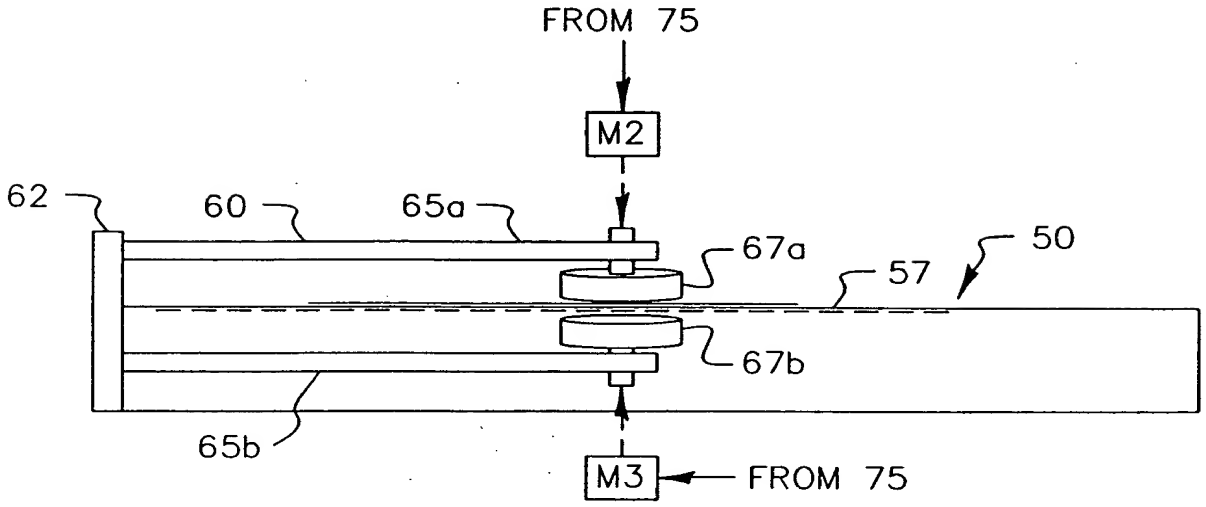


FIG. 5

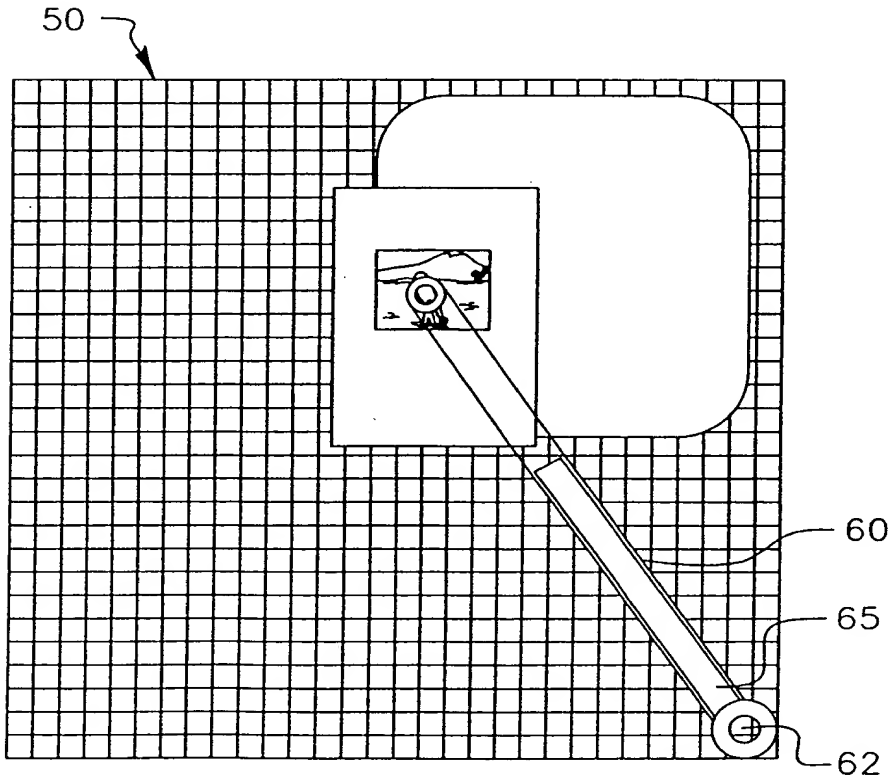
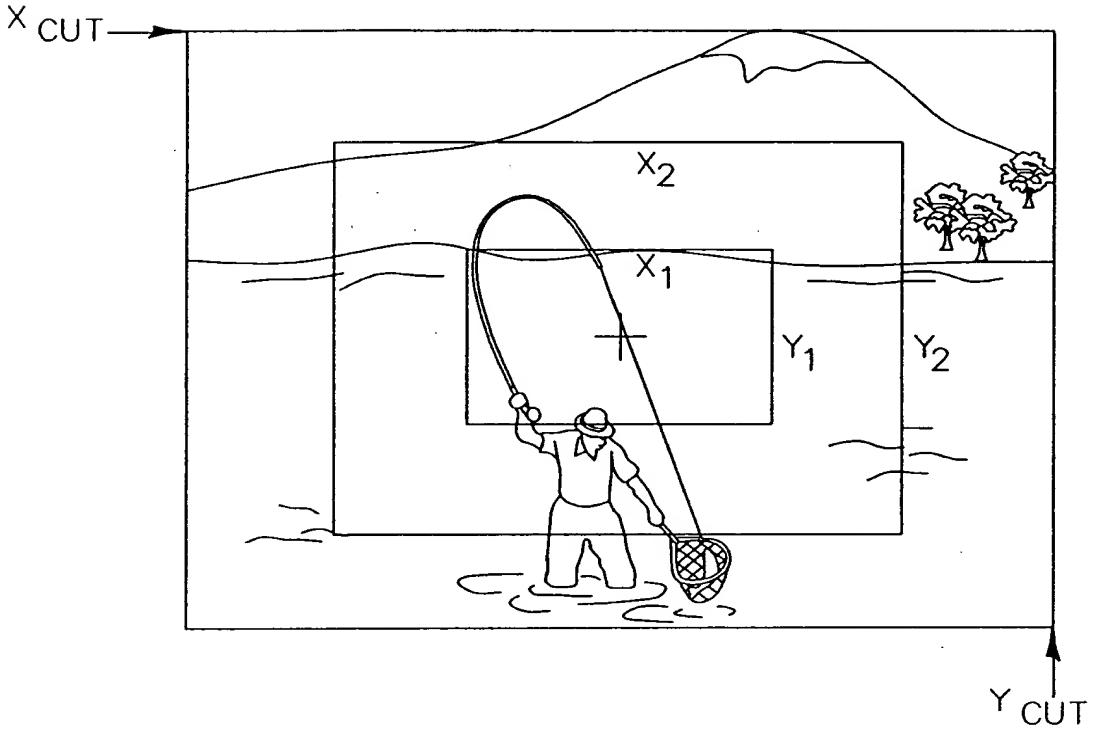


FIG. 6

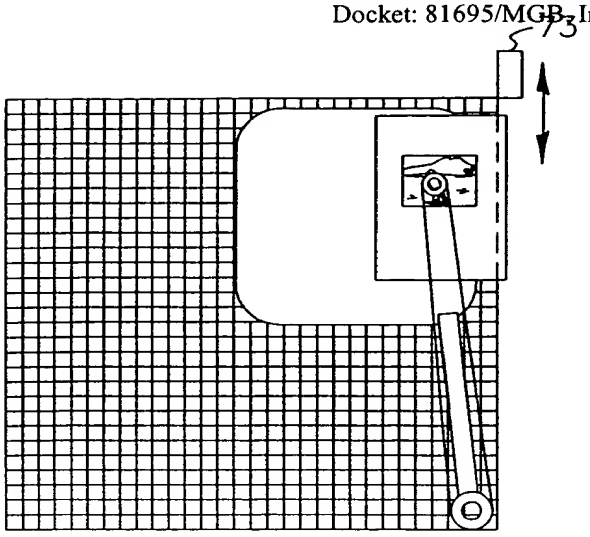


ALGORITHM APPLIED: $X_{CUT} = X_1 + X_2$

$Y_{CUT} = Y_1 + Y_2$

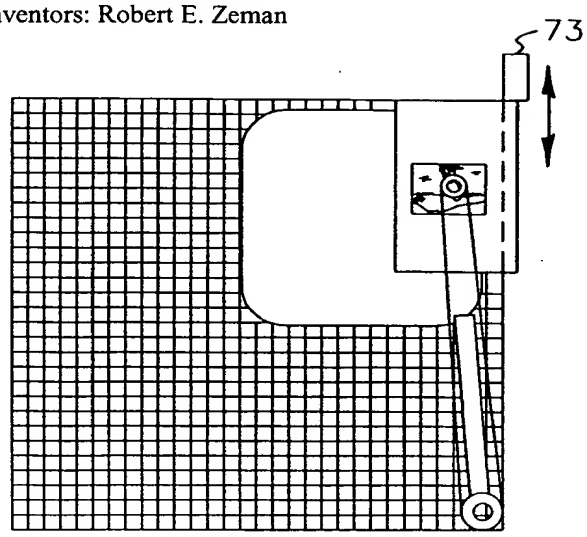
CENTERED ON THE CROSSHAIRS

FIG. 7



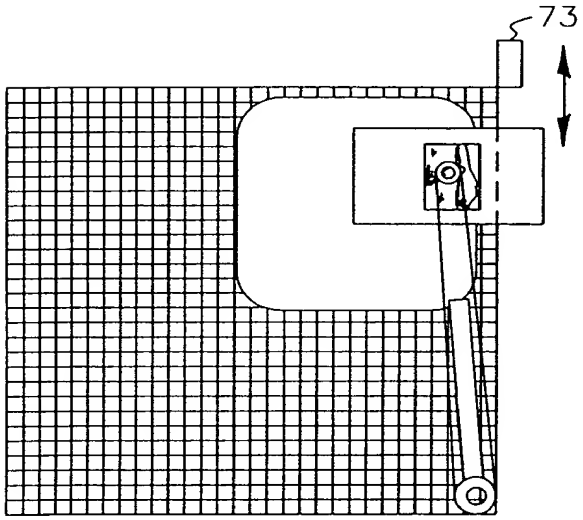
HEAD TRANSLATION & ROTATION TO FIRST EDGE CUT

FIG. 8a



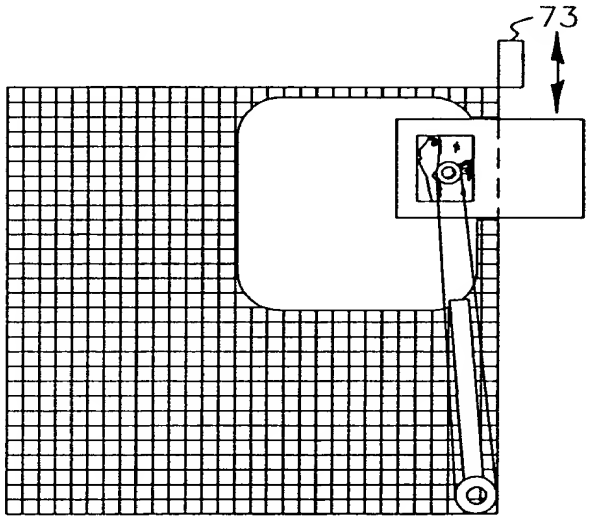
180 DEG. ROTATION TO SECOND EDGE CUT

FIG. 8b



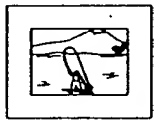
HEAD TRANSLATION AND 90 DEG. ROTATION TO THIRD EDGE CUT

FIG. 8c



180 DEG. ROTATION TO LAST EDGE CUT

FIG. 8d



FINISHED CUT

FIG. 8e

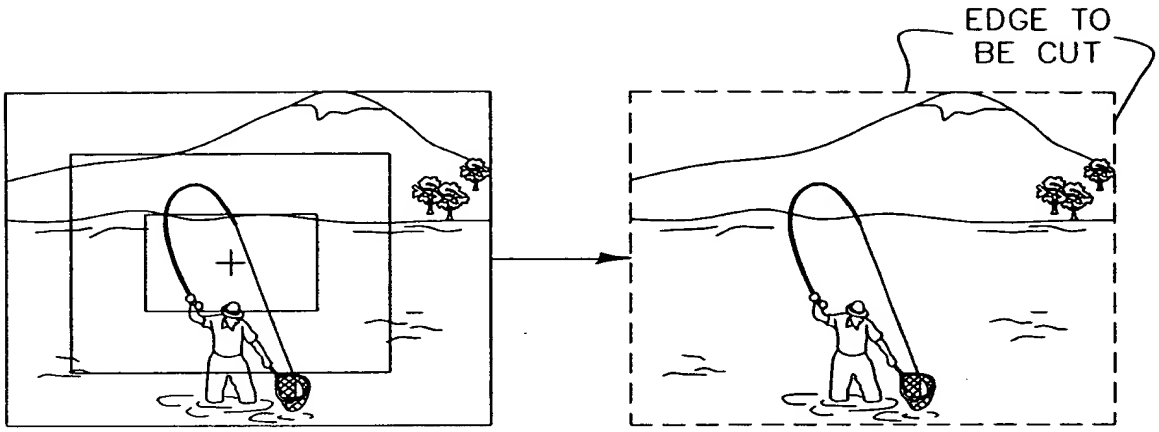


FIG. 9a NORMAL CUT FIG. 9b

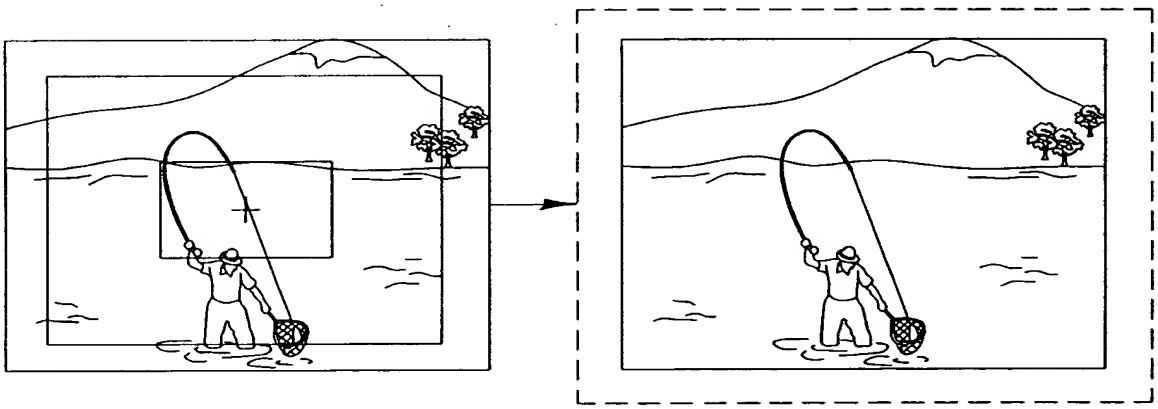


FIG. 10a HALF–INCH BORDER CUT FIG. 10b

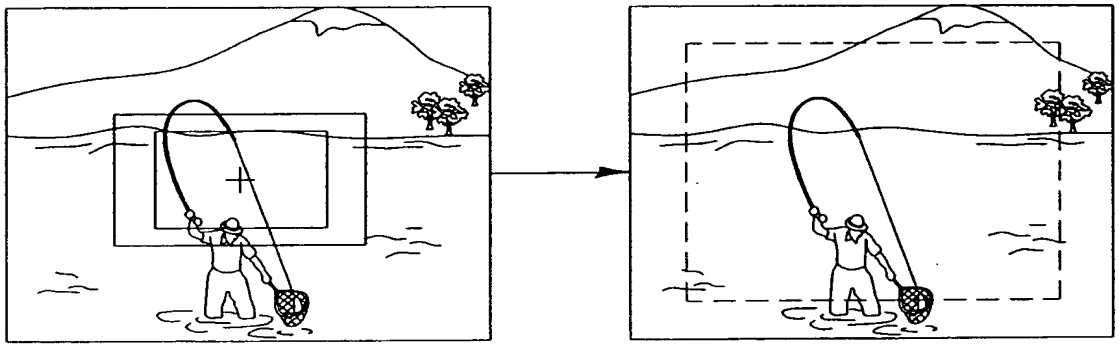


FIG. 11a CENTER CROP FIG. 11b

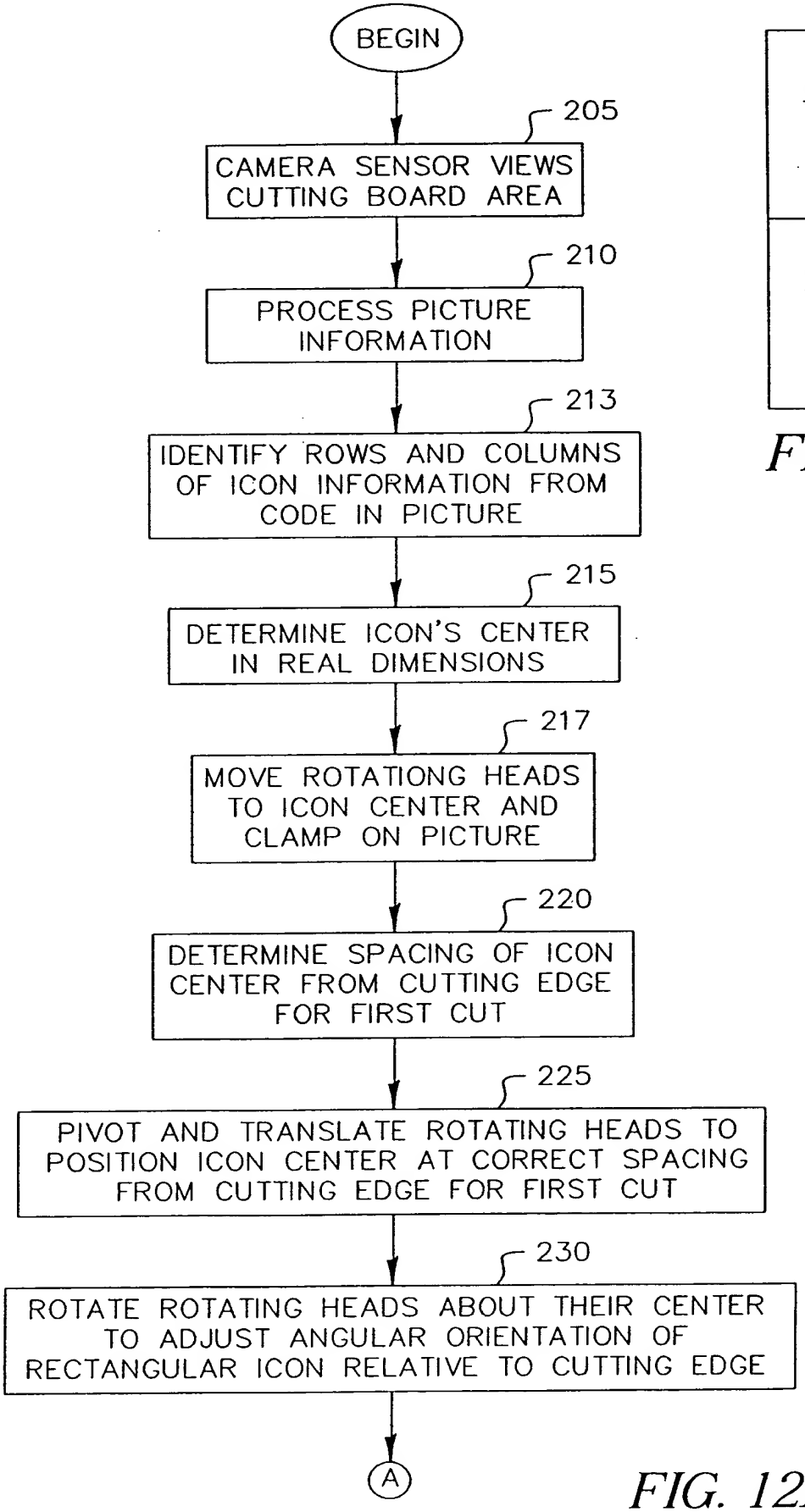


FIG. 12A

FIG. 12B

FIG. 12

FIG. 12A

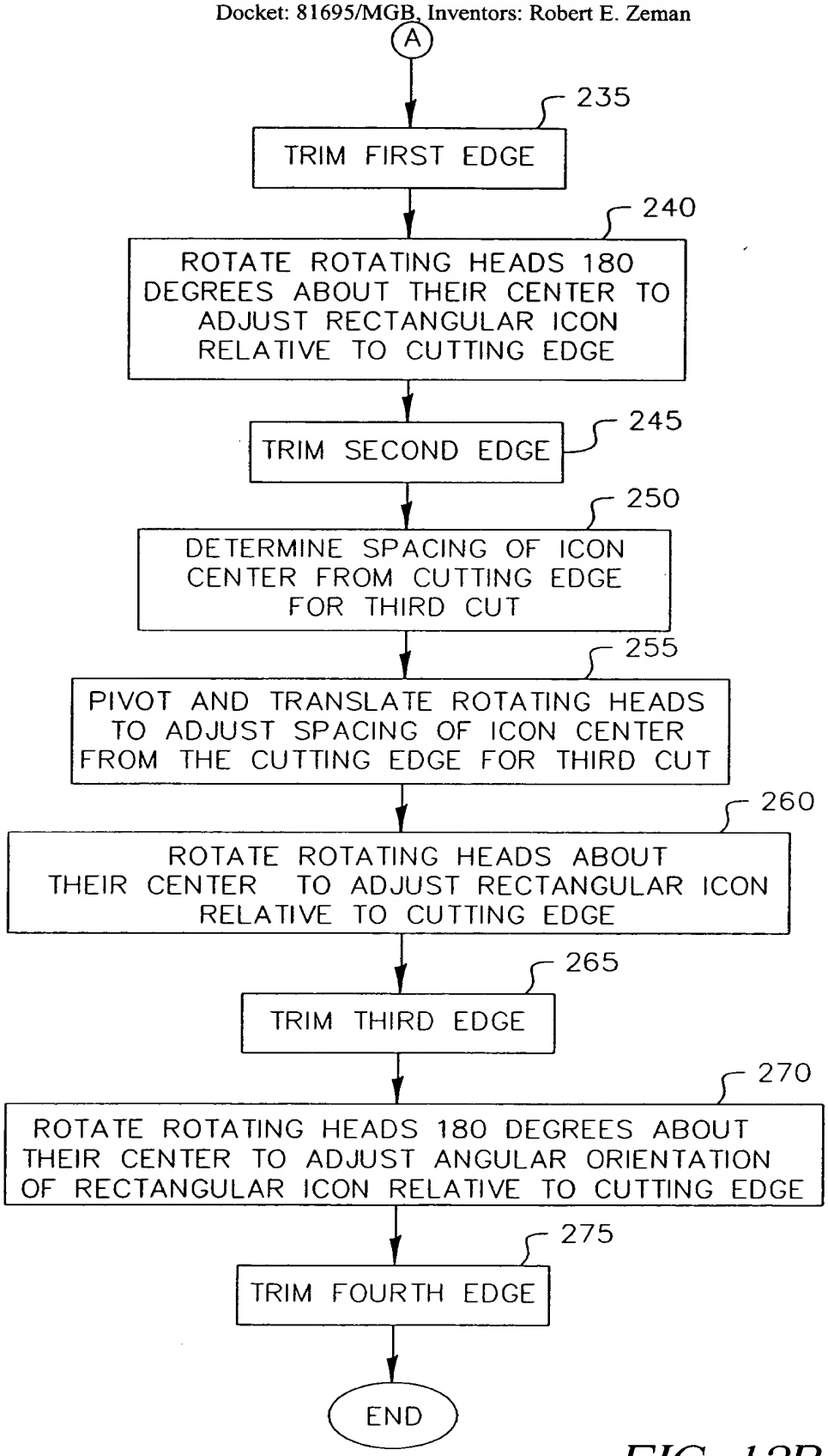

A
235
TRIM FIRST EDGE
240
ROTATE ROTATING HEADS 180 DEGREES ABOUT THEIR CENTER TO ADJUST RECTANGULAR ICON RELATIVE TO CUTTING EDGE
245
TRIM SECOND EDGE
250
DETERMINE SPACING OF ICON CENTER FROM CUTTING EDGE FOR THIRD CUT
255
PIVOT AND TRANSLATE ROTATING HEADS TO ADJUST SPACING OF ICON CENTER FROM THE CUTTING EDGE FOR THIRD CUT
260
ROTATE ROTATING HEADS ABOUT THEIR CENTER TO ADJUST RECTANGULAR ICON RELATIVE TO CUTTING EDGE
265
TRIM THIRD EDGE
270
ROTATE ROTATING HEADS 180 DEGREES ABOUT THEIR CENTER TO ADJUST ANGULAR ORIENTATION OF RECTANGULAR ICON RELATIVE TO CUTTING EDGE
275
TRIM FOURTH EDGE
END

FIG. 12B

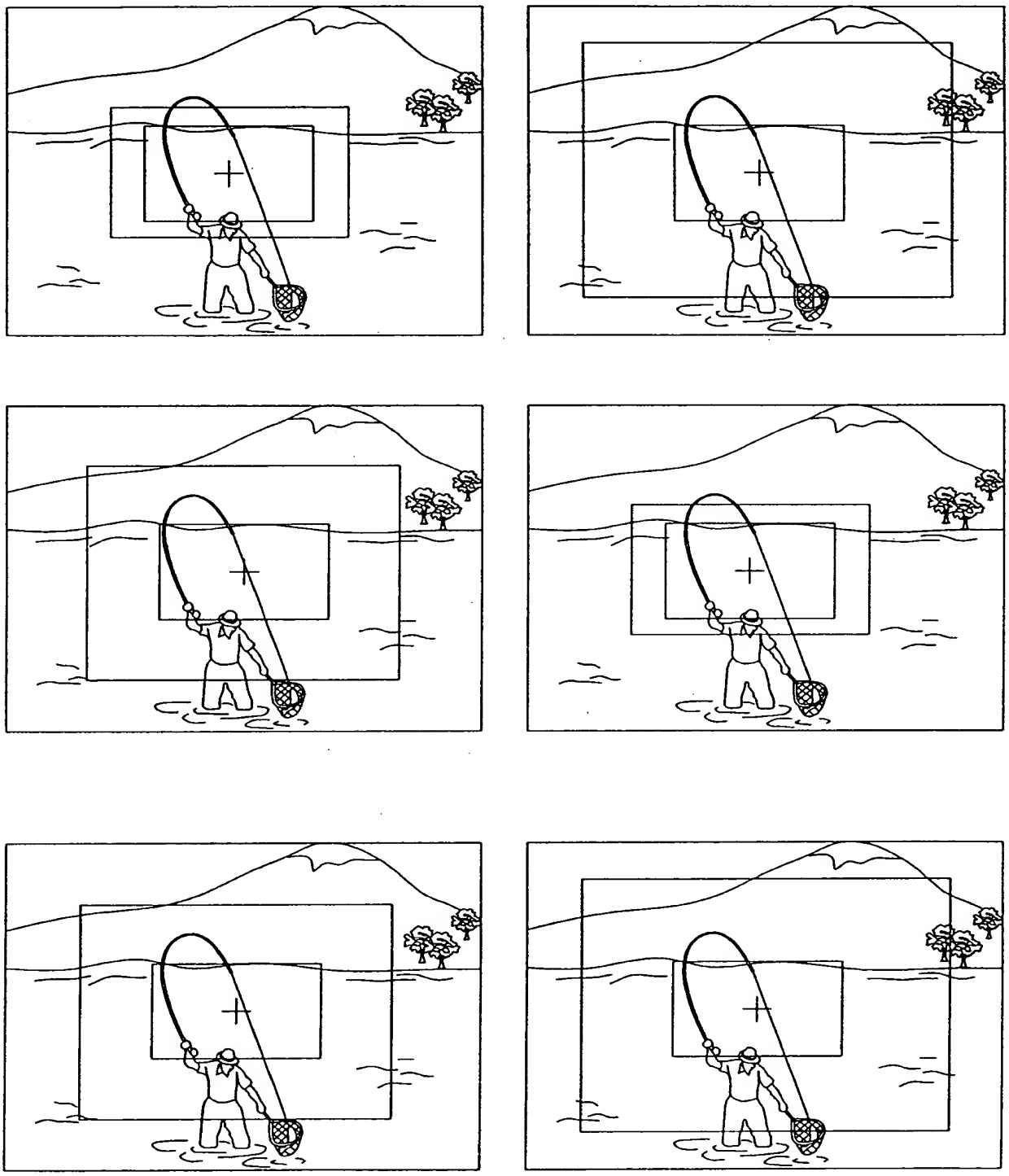


FIG. 13

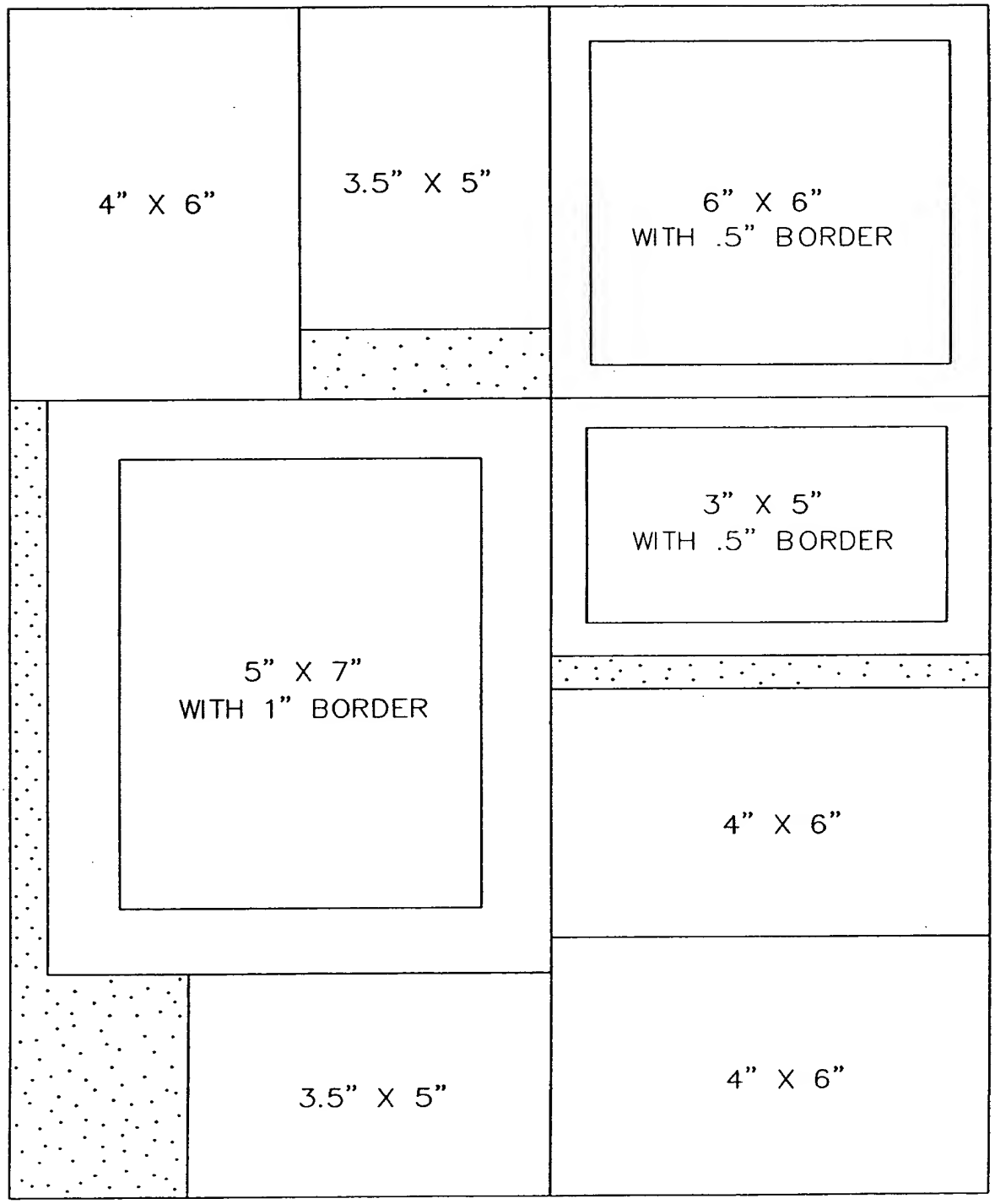

4" X 6"
3.5" X 5"
6" X 6"
WITH .5" BORDER
3" X 5"
WITH .5" BORDER
5" X 7"
WITH 1" BORDER
4" X 6"
3.5" X 5"
4" X 6"

FIG. 14

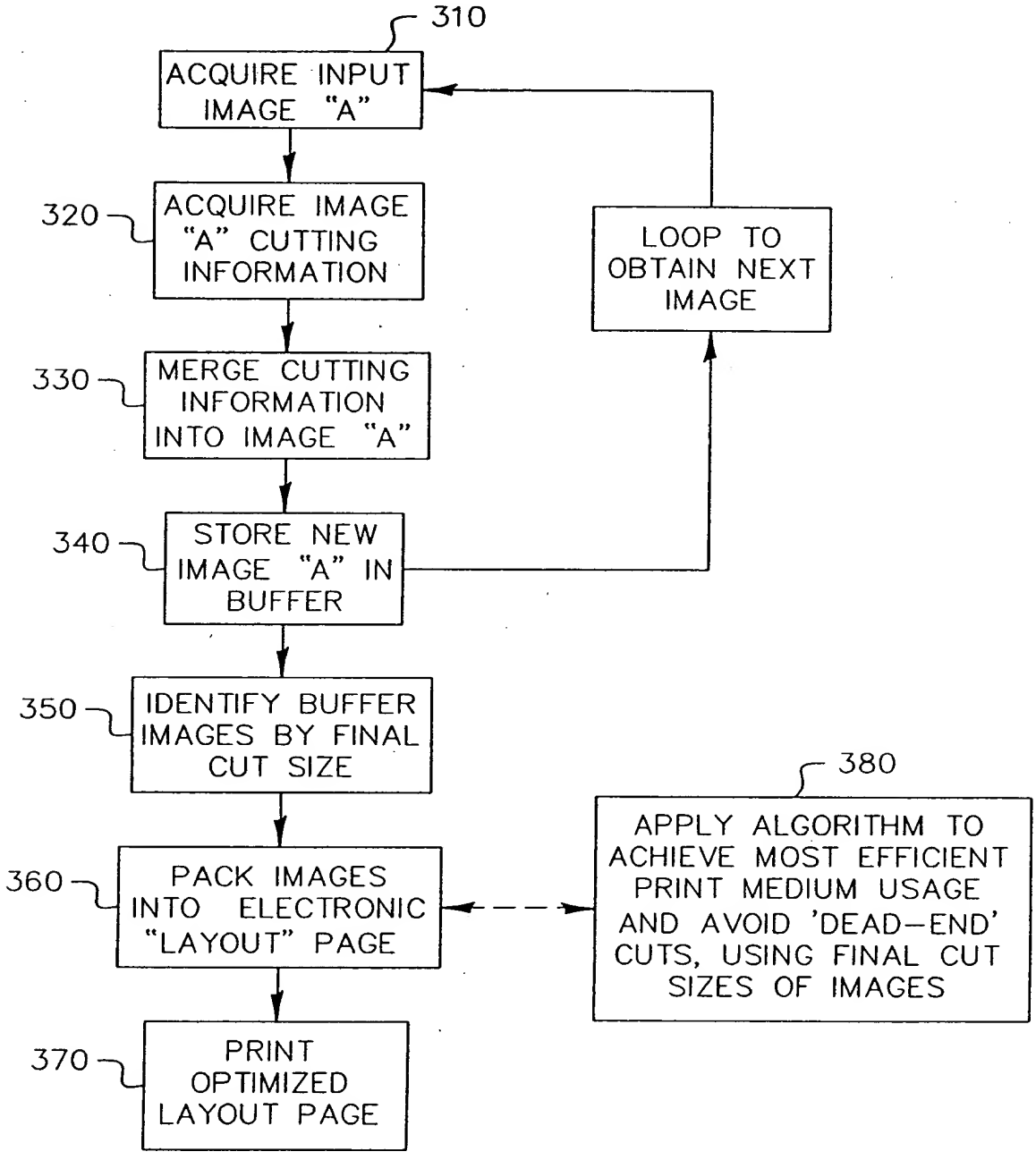

310
ACQUIRE INPUT IMAGE "A"
320
ACQUIRE IMAGE "A" CUTTING INFORMATION
330
MERGE CUTTING INFORMATION INTO IMAGE "A"
340
STORE NEW IMAGE "A" IN BUFFER
LOOP TO OBTAIN NEXT IMAGE
350
IDENTIFY BUFFER IMAGES BY FINAL CUT SIZE
380
APPLY ALGORITHM TO ACHIEVE MOST EFFICIENT PRINT MEDIUM USAGE AND AVOID 'DEAD-END' CUTS, USING FINAL CUT SIZES OF IMAGES
360
PACK IMAGES INTO ELECTRONIC "LAYOUT" PAGE
370
PRINT OPTIMIZED LAYOUT PAGE

FIG. 15

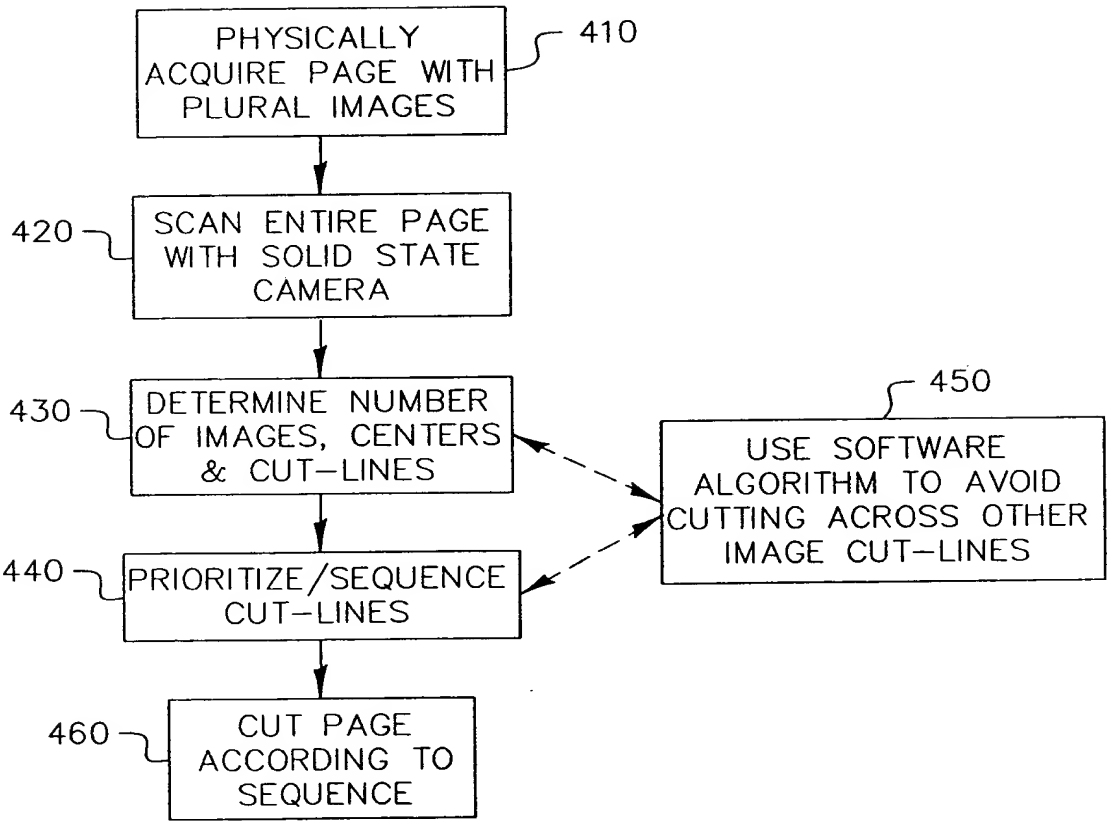

PHYSICALLY ACQUIRE PAGE WITH PLURAL IMAGES
410
SCAN ENTIRE PAGE WITH SOLID STATE CAMERA
420
DETERMINE NUMBER OF IMAGES, CENTERS & CUT-LINES
430
USE SOFTWARE ALGORITHM TO AVOID CUTTING ACROSS OTHER IMAGE CUT-LINES
450
PRIORITIZE/SEQUENCE CUT-LINES
440
CUT PAGE ACCORDING TO SEQUENCE
460

FIG. 16